

# N-Series Gold DFE

Convergence-ready, 10GE Modular L2/L3/L4 Switch for Edge-to-Core and Data Center



High-density, cost effective 10/100, 10/100/1000, 100FX and PoE modules

Optimized for enterprise edge network deployments

Multiple authentication techniques enable identity-aware networking

Enables simplified network design to reduce maintenance & service costs

Backplane architecture provides a total of 1.68 Terabits per second of switching capacity

## Product Overview

Optimized for the network edge, the Gold Distributed Forwarding Engine (DFE) modules for the Enterasys N-Series are designed specifically for high-density 10/100, 10/100/1000, and 100FX network edge applications. These DFEs provide a very cost-effective and flexible option for customers deploying switching at the edge of the network.

Gold DFEs deliver scalable performance and flexibility to ensure comprehensive switching, routing, Quality of Service (QoS), security, and traffic containment unmatched by competitive solutions.

Gold DFEs are supported in the N1, N3, N5, and N7 platforms for guaranteed investment protection across the entire series. Through a flexible, optional license upgrade, these modules support 1+1 redundancy and advanced routing for mission-critical network applications.

## Module Configurations

The Gold DFEs provide flexibility with a variety of port-density and technology options for the edge:

- Up to 48 ports of 100Base-FX via MT-RJ
- Up to 72 ports of 10/100Base-TX via RJ45
- Up to 48 ports of PoE 10/100Base-TX via RJ45
- Up to 72 ports of 10/100Base-TX via RJ21
- Up to 72 ports of 10/100/1000Base-T via RJ45
- Up to 72 ports of PoE 10/100/1000Base-T via RJ45

All modules can be installed in any N-Series chassis-based solution.

## Benefits

### Business Alignment

- Open convergence support for voice, video, and data networks enable automatic discovery, classification, and prioritization
- Cost-effective, high-density 10/100, 10/100/1000, and 100FX provide dedicated, scalable edge connectivity
- Choice of high-availability implementations align with enterprise edge network configuration requirements

### Operational Efficiency

- Integrated services design reduces the number and type of modules required to build typical wiring closet configurations and simplifies network design
- Common chassis, management, and baseline features simplify network configuration and support
- Multiple chassis footprints enable “pay as you grow” connectivity, lowering entry and support costs

### Security

- Static and dynamic policy rules intelligently sense and automatically respond to network security threats
- Multi-user, multi-method authentication on every port supports all device types connecting at the edge of the network
- Firewall-like control on every port in the infrastructure, enabling pervasive network wide perimeter security

### Support and Services

- Industry-leading customer satisfaction and first call resolution rates
- Personalized services, including site surveys, network design, installation, and training

**There is nothing more important  
than our customers.**

# Features

## Scalable Edge Connectivity

The Gold DFE dramatically increases the edge density for 10/100 and 10/100/1000 connectivity with the highest module density in the industry. This not only provides extensive scalability, but also optimizes the cost-effectiveness of the N-Series.

## Density and Performance

The N-Series provides high performance and high density:

Gold DFE	N1	N3	N5	N7
Performance (Mpps)	6.5 Mpps	19.5 Mpps	32.5 Mpps	45.5 Mpps
Capacity	4.5 Gbps	13.5 Gbps	22.5 Gbps	31.5 Gbps
10/100 Base-TX Ports	72	216	360	504
100 Base-FX Ports	54	162	270	378
10/100/1000 Base-TX Ports	72	216	360	504
10/100/100 Base-TX Ports with PoE	72	216	360	504
1000 Base-X Ports	6	18	30	42

## Common Enterasys Switching, Routing, and Management

As part of the N-Series family, Gold DFEs offer a consistent feature set and management functionality. This reduces the implementation and management costs of an end-to-end Enterasys network.

## Performance/Capacity

### Switching Fabric Bandwidth Capacity

9.0 Gbps per DFE

### Switching Throughput

6.5 Mpps (measured in 64-byte packets)

### Routing Throughput

6.5 Mpps (measured in 64-byte packets)

### Address Table Size

32,768 MAC Addresses

### VLANs Supported

4,094

### Transmit Queues

4

### Classification Rules

6,144/chassis

### Memory

Main Memory: 128 MB, expandable to 256 MB

Flash Memory: 32 MB, expandable to 64 MB

# Standards and Protocols

## Switching/VLAN Services

Generic VLAN Registration Protocol (GVRP)

802.1Q VLANs

802.1D MAC Bridges

802.1w Rapid-Reconvergence of Spanning Tree

802.1s Multiple Spanning Tree

802.3ad Link Aggregation

Broadcast Suppression

802.3x Flow Control

IDS Redirect

IGMP v1/v2

Jumbo Packet with MTU Discovery Support for Gigabit

Ethernet Ports

Flow Set-Up Throttling

SPAN Guard

## IP Routing

**Basic IP Routing Package:** Part of Enterasys Operating System (EOS) and included in all Gold DFEs.

Static Routes

RIPv1/v2

RIP Equal Cost Multipath (ECMP)

IGMPv1/IGMPv2

ICMP

Virtual Router Redundancy Protocol (VRRP)

ACL Basic

DHCP Relay

**Extended IP Routing Package:** A software upgrade (N-EOS-L3) sold on a per-chassis basis.

OSPF with Multipath Support

DVMRP

Extended ACLs

PIM-SM

LS-NAT

Only one license is required per N3, N5, or N7 chassis.

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## Standards and Protocols (Cont.)

### Security (User, Network, and Host)

Telnet (Inbound/Outbound)  
Secured Shell (SSHv2) (Switch Host Interface Only)  
Syslog  
802.1X Port-based Network Access Control (Single User)  
Web-based Authentication  
MAC-based Authentication  
Multiple Authentication types  
(802.1X, MAC Address, Web) per Port

### Management, Control, and Analysis

SNMP v1/v2c/v3  
Web Support  
Industry-Standard CLI Support  
Single IP Address Management  
Support for Multiple, Editable Configuration Files  
DHCP Client  
RADIUS Client Support with PAP and CHAP  
Entity MIB  
COM Port Boot Prom Download via ZMODEM  
RMON (Nine Groups)

High-Capacity RMON (64-bit counters)  
Simple Network Time Protocol (SNTP)  
Trace Route  
Dynamic Egress  
Inbound Rate Policing  
Node and Alias Table  
Enterasys Discovery Protocol (EDP)  
Port-based MAC Locking  
Access Control Lists

### Network Management

NMS Console  
NMS Policy Manager  
NMS Inventory Manager  
NMS Automated Security Manager

## Specifications

### Physical Specifications

#### Dimensions

46.43 cm (18.28") H x 6.05 cm (2.38") W x 29.51 cm (11.62") D

#### Weight

5.54 kg (12 lbs), gross shipping; 4.10 kg (9 lbs), net

### Environmental Specifications

#### Operating Temperature

5° C to 40° C (41° F to 104° F)

#### Non-Operating Temperature

-30° C to 73° C (-22° F to 164° F)

#### Operating Humidity

5% to 90% RH, non-condensing

#### Power Consumption

100 to 125 VAC or 200 to 250 VAC; 50 to 60 Hz

### Agency and Standards Specifications

#### Safety

UL160950, CSA 60950, EN 60825, EN 60950, IEC 60950

#### Electromagnetic Compatibility

47 CFR Parts 2 and 15, CSA C108.8, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, VCCI V-3

### IEEE Standards

IEEE 802.3  
IEEE 802.1D  
IEEE 802.1p  
IEEE 802.1Q  
IEEE 802.1w  
IEEE 802.1s  
IEEE 802.1X  
IEEE 802.3ad

### Power over Ethernet

IEEE 802.3af  
Total PoE Power: 4,800 watts per chassis  
(7.5 w) on all ports simultaneously  
Support Class 1 (4 w), Class 2 (7.5 w) and Class 3 (15.4 w) PoE devices  
Fully-loaded chassis will power Class 2 devices  
Automated or manual PoE power distribution  
Per-port enable/disable  
Per-port power level  
Per-port priority safety  
Per-port overload and short-circuit protection  
System power monitor

## Ordering Information

Part Number	Description
<b>Gold Distributed Forwarding Engines</b>	
4H4282-49	Gold DFE with 48 10/100Base-TX ports via RJ45 and 1 Network Expansion Module (NEM) slot
4H4283-49	Gold DFE with 48 10/100Base-TX ports via RJ21 and 1 Network Expansion Module (NEM) slot
4H4285-49	Gold DFE with 48 10/100Base-TX PoE ports via RJ45 and 1 Network Expansion Module (NEM) slot
4H4284-49	Gold DFE with 48 100Base-FX ports via Multi-mode Fiber MTRJ and 1 Network Expansion Module (NEM) slot
4H4202-72	Gold DFE with 72 10/100Base-TX ports via RJ45
4H4203-72	Gold DFE with 72 10/100Base-TX ports via RJ21
4G4282-49	Gold DFE with 48 10/100/1000Base-T ports via RJ45 and 1 Network Expansion Module (NEM) slot
4G4285-49	Gold DFE with 48 10/100/1000Base-T PoE ports via RJ45 and 1 Network Expansion Module (NEM) slot
4G4202-72	Gold DFE with 72 10/100/1000Base-T ports via RJ45
4G4205-72	Gold DFE with 72 10/100/1000Base-T PoE ports via RJ45
<b>Network Expansion Modules</b>	
7G-6MGBIC-B	Network Expansion Module with 6 1000Base-X ports via mini- MGBIC, includes 100FX support
7K-2XFP-6MGBIC	Network Expansion Module with 6 1000Base-X ports via mini- MGBIC and 2 10GbE ports via XFP
7S-DSNSA7-01	N-Series Security Module for Intrusion Detection
7S-DSNSA7-01NPS	N-Series Security Module for Network Access Control (No PS)
WS-C20N-32	N-Series Wireless Controller Module
<b>Mini-GBIC Modules</b>	
MGBIC-LC01	1000Base-SX Mini-GBIC via LC Connector
MGBIC-LC03	1000Base-LX/LH (2 km Mini-GBIC) MMF via LC Connector
MGBIC-08	1000Base-LX/LH (70 km Long Haul) Mini-GBIC SMF via LC Connector
MGBIC-LC09	1000Base-LX Mini-GBIC via LC Connector
MGBIC-02	1000Base-T Mini-GBIC via RJ45 Connector
MGBIC-MT01	1000Base-SX Mini-GBIC via MTRJ Connector
MGBIC-N-LC04	100Base-FX (2 km) port Mini-GBIC via LC connector
MGBIC-N-LC05	100Base-FX (10 km) port Mini-GBIC via LC connector
<b>XFP Modules</b>	
10GBASE-ER-XFP	10GBase-ER, IEEE 802.3 SM, 1550 nm Long Wave Length, 40 km, LC XFP
10GBASE-LR-XFP	10GBase-LR, IEEE 802.3 SM, 1310 nm Long Wave Length, 10 km, LC XFP
10GBASE-SR-XFP	10GBase-SR, IEEE 802.3 MM, 850 nm Short Wave Length, 33/82 M, LC XFP
10GBASE-CX4-XFP	10GBase-CX4, IEEE 802.3 TwinAxial, Copper SFF-8470, 15 M, LC XFP
10GBASE-ZR-XFP	10GBase-ZR, SM, 1550 nm Long Wave Length, 80 km, LC XFP
<b>Software</b>	
N-EOS-L3	Enterasys Operating System Advanced Feature Package for N-Series Switches
N-EOS-RED	Enterasys Operating System (EOS) 1+1 High Availability Upgrade for N-Series Switches (with Gold DFE only)

*Note:*

1. Gold Distributed Forwarding Engines (DFEs) are designed to work seamlessly with other Gold DFEs in the same chassis; however, they cannot be mixed with Platinum or Diamond DFEs in the same chassis.
2. By default, the Gold DFE does not provide high availability (system redundancy). To get 1+1 redundancy, the N-EOS-RED software license must be purchased and installed.
3. Basic EOS routing is included with each Gold DFE. EOS supports static routes and RIP.
4. Only one Advanced Routing Module (N-EOS-L3) is required per chassis (N3, N5, or N7).
5. The Advanced Routing Package (N-EOS-L3) includes OSPF, DVMRP, and PIM-SM.

## Warranty

As a customer-centric company, Enterasys is committed to providing quality products and solutions. In the event that one of our products fails due to a defect, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or media replaced as soon as possible.

The Enterasys N-Series comes with a one year hardware warranty. For full warranty terms and conditions please go to <http://www.enterasys.com/support/warranty.aspx>.

## Service and Support

Enterasys Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Enterasys account executive for more information about Enterasys Service and Support.

## Contact Us

For more information, call Enterasys Networks toll free at 1-877-801-7082, or +1-978-684-1000 and visit us on the Web at [enterasys.com](http://enterasys.com)



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